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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

APPLICANT: Keiji KASHIMA et al.

TITLE: RETARDATION LAYER AND LIQUID CRYSTAL DISPLAY APPARATUS USING THE SAME

AMENDED CLAIMS

1. (currently amended) A retardation layer, which functions as a negative C plate, comprising a fixed cholesteric structure ~~characterized in that~~ in which, at least on one surface of two major surfaces of the retardation layer, liquid crystal molecules, whose directors are not substantially coincident, exist within an interval of 100 μm.

2. (currently amended) according to claim 1, ~~characterized in that~~ in which, also on the other surface of the two major surfaces of the retardation layer, liquid crystal molecules, whose directors are not substantially coincident, exist within an interval of 100 μm.

3. (currently amended ) A retardation layer, which functions as a negative C plate, comprising a fixed cholesteric structure ~~characterized in that~~ in which, at least on one surface of two major surfaces of the retardation layer, liquid crystal molecules, whose directors are not substantially coincident, exist within a 50 μm radius region.

4. (currently amended) A retardation layer, which functions as a negative C plate, comprising a fixed cholesteric structure ~~characterized in that~~ in which, on a major surface of the retardation layer, those twist angles in the cholesteric structure are not substantially coincident exist at a location within an interval of 100 μm.

5. (currently amended) A retardation layer, which functions as a negative C plate, comprising a fixed cholesteric structure ~~characterized in that~~ in which, on a major surface of the retardation layer, those twist angles in the cholesteric structure are not substantially coincident exist at a location within a 50 μm radius region.

6. (currently amended) A retardation layer, which functions as a negative C plate, comprising a fixed cholesteric structure ~~characterized in that~~ in which the retardation layer comprises, on a cross-sectional surface comprising a normal line to a surface of the retardation layer, within a 50 μm radius region, a helical axis structure region, in which an angle formed by the normal line and a helical axis of the helical axis structure region having the cholesteric structure is a clockwise acute angle from the normal line direction, and a helical axis structure region, in which the angle is a counterclockwise acute angle from the normal line direction.

7. (currently amended) The retardation layer according to ~~any one of claims 1 to 6, characterized in that~~ claim 1, wherein a plurality of minute units (domains) having the cholesteric structure exist.

8. (currently amended) A retardation layer, which functions as a negative C plate, comprising a cholesteric structure which is fixed in a range that its helical pitch is 1 pitch or more, ~~characterized in that~~ in which a plurality of minute units (domains) having the cholesteric structure exist.

9. (currently amended) The retardation layer according to ~~any one of claims 1 to 8, characterized in that~~ claim 1, wherein a selective reflected wavelength of a selective reflected light of the cholesteric structure is shorter than the wavelength of an incident light.

10. (currently amended) The retardation layer according to ~~any one of claims 7 to 9, characterized in that~~ claim 7, wherein a maximum major axis of an inscribed ellipse on a surface of the minute units (domains) is 40 μm or less.

11. (currently amended) The retardation layer according to claim 10, ~~characterized in that~~ wherein the maximum major axis of the inscribed ellipse on the surface of the minute units (domains) is same as or shorter than the wavelength of the incident light.

12. (currently amended) The retardation layer according to ~~any one of claims 7 to 11, characterized in that~~ claim 7, wherein an alignment defect (disclination) distance between the minute units (domains) is same as or shorter than the wavelength of the incident light.

13. (currently amended) The retardation layer according to ~~any one of claims 1 to 12, characterized in that~~ claim 1, wherein a haze value, when the retardation layer is measured based on the JIS-K7105, is 2% or less.

14. (currently amended) The retardation layer according to ~~any one of claims 1 to 13, characterized in that~~ claim 1, wherein the maximum value of the leaked light measured in a range of 380 nm to 700 nm, at the time of measuring the retardation layer interposed between the polarizing plates in the cross Nicol state, is 1% or less, with a premise that the leaked light at the time of measuring from the normal line direction with the polarizing plates in the cross Nicol state is 0% and the leaked light at the time of measuring from the normal line direction with the polarizing plates in the parallel state is 100%.

15. (currently amended) The retardation layer according to ~~any one of claims 1 to 14, characterized in that~~ claim 1, wherein the helical axis of the minute units (domains) having the cholesteric structure and the normal line to the retardation layer surface are not substantially coincident.

16. (currently amended) The retardation layer according to claim 15, ~~characterized in that~~ wherein an average value of the angle formed by the helical axis of the minute units (domains) having the cholesteric structure and the normal line to the retardation layer surface is substantially 0 degree.

17. (currently amended) The retardation layer according to ~~any one of claims 1 to 16, characterized in that~~ claim 1, wherein a second retardation layer is further laminated on the major surface of the retardation layer.

18. (currently amended) The retardation layer according to claim 16, ~~characterized in that~~ wherein both of the selective reflected lights of the retardation layer and the second retardation layer have the substantially coincident selective reflected wavelength.

19. (currently amended) The retardation layer according to ~~any one of claims 1 to 18, characterized in that~~ claim 1, wherein the retardation layer has a molecular structure of a three dimensionally cross-linked chiral nematic liquid crystal.

20. (currently amended) The retardation layer according to ~~any one of claims 1 to 18, characterized in that~~ claim 1, wherein the retardation layer has a molecular state of a polymer cholesteric liquid crystal in a glass state.

21. (currently amended) A retardation optical element comprising a transparent base material, and the retardation layer according to ~~any one of claims 1 to 20~~ claim 1 formed on the transparent base material surface.

22. (currently amended) The retardation optical element according to claim 21, ~~characterized in that~~ wherein an alignment layer is formed in between the transparent base material and the retardation layer.

23. (currently amended) The retardation optical element according to claim 21 ~~or 22, characterized in that~~ , wherein a color filter layer is formed in between the transparent base material and the retardation layer.

24. (currently amended) A polarizing element characterized in that, in the transparent base material of the retardation optical element according to ~~any one of claims 21 to 23~~ claim 21, a polarizing layer is disposed on a surface on which the retardation layer is not formed.

25. (currently amended) A liquid crystal display apparatus comprising: a liquid crystal cell; a pair of polarizing plates disposed so as to interpose the liquid crystal cell; and the retardation optical element according to ~~any one of claims 21 to 23~~ claim 21 disposed in between the liquid crystal cell and at least one of the pair of the polarizing plates.

26. (original) A method for manufacturing a retardation optical element comprising: an alignment layer forming step of forming an alignment layer on a transparent base material; a coating step of coating a retardation layer forming coating solution, including a liquid crystal material having the cholesteric regularity for forming a cholesteric liquid crystal structure, on the alignment layer, in a state that a rubbing treatment is not subjected to the alignment layer; an alignment treatment step of subjecting an alignment treatment to the retardation layer formed on the alignment layer in the coating step; and a fixing step of fixing the cholesteric liquid crystal structure exhibited in a liquid crystal phase state in the retardation layer, by subjecting a solidifying treatment to the retardation layer aligned by the alignment treatment, so as to be fixed.